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SWAZILAND

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ANNUAL MEDICAL & SANITARY REPORT

FOR THE YEAR 1957

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SWAZILAND

ANNUAL MEDICAL AND SANITARY REPORT
1957.

CONTENTS.

INDTRODUCTION Page 1.
CHAPTER 1. Medical Department Staff " 2
CHAPTER 2. Public Health, " 3
(i) Communicable Diseases.
  (a) Malaria " 4
  (b) Bilharzia " 4
  (c) Tuberculosis " 5
  (d) Leprosy " 6
  (e) Poliomyelitis " 7
  (f) Small Pox " 7
  (g) Enteric Fever " 7
  (h) Diphtheria " 7
  (i) Meningococcal Meningitis " 7
  (j) Influenza " 7
  (k) Venereal Diseases " 8
  (l) Whooping Cough " 9
  (m) Measles and Chicken-pox " 9
  (n) Rabies " 9
  (o) Dysentery " 9
  (p) Infantile Gastro-enteritis " 10
  (q) Tape Worm Infestation " 10
(ii) Nutritional and Deficiency Diseases " 12
(iii) Sanitation " 13
(iv) Water Supplies " 13
(v) Food Supplies " 13
CHAPTER 3. Hospitals and Clinics " 14
  (a) Government Hospitals & Clinics " 14
  (b) Mission Hospitals & Clinics " 17
  (c) Havelock Mine Hospital " 18
CHAPTER 4. Maternity Services " 19
CHAPTER 5. Training of Affican Nurses " 19
CHAPTER 6. Laboratory Services " 20
CHAPTER 7. Vital Statistics " 20
CHAPTER 8. Prisons " 21
CHAPTER 9. Legislation " 21
CHAPTER 10. Finance " 21
CHAPTER 11. Publications " 22.

APPENDIX I. Annual Report of Malaria Control Unit " 24
APPENDIX II. Annual Report of Mbuluzi Leper Hospital " 29
RPPENDIX III. Circular on Kwashiorkor " 33
APPENDIX IV. Return of Out-patients & In-patients at Government Hospitals " 35
APPENDIX V. Meteorological Observations " 41.

INTRODUCTION

Swaziland has an area of 6,704 square miles and is geographically divided into 3 longitudinal regions, namely the mountainous highveld with an altitude of approximately 3,000 feet on the west, the middleveld with an average altitude of 2,000 feet and the lowveld, or bushveld, on the east, with an altitude of 500 - 1,500 feet.

The Highveld has a temperate climate and frosts occur during the winter. The climate of the Middleveld is sub-tropical and that of the bushveld almost tropical.

Rainfall, which occurs chiefly in the summer, varies between approximately 60" a year in the highveld to approximately 30" a year in the lowveld. The country is well watered by numerous perennial streams and rivers.

The Swazi are predominantly peasant farmers and livestock owners, and live in "Native Areas" which are scattered throughout the Territory and intersected by European owned land.

Their dwellings for the most part consist of wattle-and - daub structures, or bee-hive huts, and small family collections of these huts are widely dispersed. Other than in the neighbourhood of the European towns, there are no villages.

A census held in 1956 gave the total population of Swaziland as 241,865 of which 5,932 were Europeans and 1,391 Eurafricans.

The medical needs of the Territory are met by

(a) The Swaziland Government Medical Service, which is responsible for the Public Health Laboratory at Bremersdorp, hopsitals at Mbabane, Hlatikulu and Mankaiana and 10 clinics in outlying areas of the Mbabane and Hlatikulu districts;

(b) Medical Missions, viz. the Nazarene Mission at Bremersdorp, with its Raleigh Fitkin Memorial Hospital, and 10 clinics in the Bremersdorp, Stegi and Pigg's Peak districts; the Roman Catholic Mission at Stegi, with its Good Shepherd Hospital; and the Methodist Mission with its Mahamba Hospital at Mahamba; and

(c) Private Practitioners at Bremersdorp, Malkerns, Stegi, Pigg's Peak and at Mliba in the Manzini District, and Sicunusa in the Mankaiana district. The Swaziland Irrigation Scheme at Mananga employs a full-time medical officer, and the Havelock Asbestos Mine has a well-equipped hospital, and a full-time Medical Officer, for employees and their families.

At the instigation of certain private practitioners a Medical Association of Swaziland was formed in 1957, with the object of holding clinical meetings and discussing matters of general medical interest. This development is warmly welcomed by this Department, as professional contact between widely scattered practitioners has been sadly lacking in the past.

CHAPTER 1

MEDICAL DEPARTMENT STAFFING.

(a) SENIOR SERVICE.

	Name	Station.
Director of Medical Services	Dr. B. D. Whitworth	Mbabane.
1 Malaria Medical Officer	Dr. O. Mastbaum O.B.E.	Bremersdorp.
1 Medical Officer of Health	Dr. R. D. Gauldie,	Bremersdorp.
7 Medical Officers	Dr. O. Arnheim	Mbabane
	Dr. L.E.D.F. Joubert,	Mbabane,
	Dr. A. P. Zwane,	Hlatikulu
	Dr. J. F. Alexander.	Mbabane
	3 Posts Vacant.	
2 Pharmacist/Storekeepers	Miss M. Smith	Mbabane
	Mr. J. L, van der Vyver	Hlatikulu
1 Matron	Miss E. M. Bailey	Mbabane
13 Nursing Sisters	Mrs. J. Scogings	Mbabane,
	Miss J.M. van der Meulen	Mbabane,
	Miss S. Todd	Mbabane,
	Miss L.E. Sumner	Mbabane
	Miss J. A. Wilson	Hlatikulu
	Miss D. E. Burns	Hlatikulu
	Miss A. McKillop	Hlatikulu
	Miss A. Martin	Hluti
	Miss M.A. von Wissell	Goedgegun
	Mrs. H. Perkins	Mankaiana
	3 Posts vacant.	
1 Radiographer	Miss R. J. O'Shea	Mbabane,
1 Laboratory Assistant	Mrs. H. Swart	Bremersdorp
2 Health Inspectors	Mr. G. J. van Eeden	Bremersdorp,
	Mr. D. M. Eckard	Mbabane,
1 Clerk	Mr. J. H. Thomas	Mbabane,
1 Lady Clerk	Mrs. D.M.C. Lane	Mbabane.
1 Housekeeper (Mbabane Hospital)	Mrs. M. McCall	Mbabane.

(b) JUNIOR SERVICE.

1 Senior Hospital Assistant
3 Hospital Assistants (One post vacant)
2 Dispensers
1 Pupil Dispenser
2 Laboratory Assistants
4 Clerks
68 Nurses (14 posts vacant)
2 Out-patient Attendants (1 post vacant)
4 Ambulance Drivers (1 post vacant)
1 Senior Malaria Assistant
10 Malaria Assistants,
1 Wardmaster
12 Ward Attendants
3 Dispensary Orderlies
14 Orderlies
2 Nurse Aides
13 Laundresses
2 Seamstresses
1 Office Messenger
1 Night Watchmen,
4 Hospital Groundsman
5 Cooks
5 Assistant Cooks (4 posts vacant)
4 Housemaids.

The vacancies are posts at Pigg's Peak Hospital and the new wards at Hlatikulu Hospital all of which are not yet completed.

APPOINTMENTS, PROMOTIONS, RESIGNATIONS & RETIREMENTS IN SENIOR SERVICE DURING 1957

APPOINTMENTS

Sister S. S. Robberts		1.2.57
Mrs. McCall,	Housekeeper	18.6.57
Dr. J. F. Alexander		1.7.57
Mrs. H. Swart,	Laboratory Assistant	1.10.57
Sister L.E. Sumner		1.11.57
Mr. D. M. Eckard,	Health Inspector	1.11.57

PROMOTIONS

Dr. B. D. Whitworth,	Medical Officer in Charge Mbabane Hospital to Director of Medical Services	1.5.57

RETIREMENTS.

Dr. H. Flack		19.10.57
Dr. J.C.J. Callanan, O.B.E.,	Director of Medical Services	31.10.57

RESIGNATIONS

Dr. M. S. Compton		28. 8.57
Sister C. Leill-Cock		5.11.57
Mr. N. J. Swart,	Health Inspector	27.11.57.

The Malaria Medical Officer was on overseas leave during the period May - October 1957, and visited World Health Organisation Headquarters in Geneva for discussions with the Chief of the Malaria Section. Shortly after his return to Swaziland, his services were requested by the Regional Director, W.H.O., Brazzaville, for an urgent short-term consultant assignment in Liberia. This was followed by attendance at the W.H.O. Conference on the Practical Aspects of Malaria Control held in Brazzaville from 19th to 20th November.

The Medical Officer of Health, who is responsible for the bilharzial investigational and control work in the Territory, has been granted a W.H.O. Bilharzia Control Fellowship and left in October on a 6 months course of study in Rhodesia, the Sudan, and the Phillipines. During August, he had spent a fortnight with Dr. Pitchford, Officer in charge of the Bilharzia Research Unit, at Nelspruit.

The Health Inspector, Bremersdorp, attended the 15th Annual Congress of the Health Officials Association of South Africa, held at Port Elizabeth from 4th to 8th November.

CHAPTER 2.

PUBLIC HEALTH.

It must be pointed out that Infectious Diseases Returns, which were previously rendered by Mbabane Hospital, Hlatikulu Hospital, Raleigh Fitkin Memorial Hospital and Havelock Mine Hospital, have since August 1957 been rendered also by Good Shepherd Hospital and Mahamba Mission Hospital, and by private practitioners. Some allowance should be made for this change in comparing the figures for 1957 with those of previous years.

(i) COMMUNICABLE DISEASES.

(a) MALARIA. The malaria position continues to be satisfactory. As a result of the success obtained in interrupting malaria transmission through the Territory by hut spraying with residual insecticide (B.H.C. 50% wettable powder with 10% gamma content), control measures in 1957 were discontinued over a further area, and were maintained only in a "cordon sanitaire" approximately 15 miles wide along the northern, eastern and southern borders, where 44,287 huts were sprayed, as against approximately 150,000 when all malarious areas were controlled.

The areas in which control has been discontinued, amounting to approximately two-thirds of all the malarious area of the Territory, were covered by surveillance teams, who were required to report on mosquito breeding, and to submit for examination blood slides, taken by the random sampling method.

Of the 6,798 blood smears from all areas examined during the year, malaria parasites were present in 64, and of these cases, 36 were recent arrivals from neighbouring territories or Swazis who had recently visited neighbouring Territories.

In the pre-control era, between 4,000 and 7,000 cases of malaria were reported yearly, and there were thousands of unreported cases. The parasite rate among the younger children during the transmission season sometimes reached 100%, and in the winter months was often 50 - 60%.

Breeding by Anopheles gambiae continued in both controlled and uncontrolled areas, but even in areas where control had been abandoned for 2 years, it was not possible to find adult mosquitos in dwellings. The remarkable change in the habits of A. gambiae from its pre-control anthropophagic endophilic behaviour to its present exophilic and presumably zoophilic existence is not understood. The W.H.O. Anopheles Gambiae Advisory Team is expected to visit Swaziland in February 1958 to investigate and advise on this and other vector problems.

The full report on the malaria position, by the Malaria Medical Officer will be found, in Appendix I , page 24.

(b) BILHARZIA. During the year 372 cases of bilharzia (319 out-patients and 57 in-patients) were treated in Government Hospitals and the Raleigh Fitkin Memorial Hospital. This compares with 261 cases in 1956 (which is the lowest figure on record) and 414 cases in 1955.

These figures give no indication of the bilharzia position in the Territory, as surveys have shown that approximately 30% of the inhabitants of the middleveld and lowveld are affected. The great majority of those seeking treatment are boys with haematuria. The late effects of bilharzia are seldom encountered clinically

Work has continued throughout the year on the Bilharzia Control Scheme in the Mzimnene catchment area around Bremersdorp, approximately 40 square miles in extent and containing 31 miles of river, streams and furrows.

During the year six snail surveys of the whole area were undertaken, followed by sulphation of all water courses.

In a survey of the area in 1954, 5,910 Physopsis (the vector snail of urinary bilharzia) were discovered. The results of surveys of the same area over the past 3 years have been as follows:-

1955 -	405 Physopsis	(average of 2 surveys)
1956 -	153 Physopsis	(" " " 3 ")
1957 -	149 Physppsis	(" " " 6 ").

Only two of the Physopsis found in 1957 were infected. "Sample" surveys shortly after sulphation have revealed negative or almost negative results.

In May a snail survy of the Malkerns Irrigation Scheme, was undertaken. The main canal of this irrigation scheme is roughly 15 miles long. There are about 18 miles of subsidiary canals and 15 miles of natural water courses. Surprisingly few snails were found, except at and near a dam at the termination of the canal. The snails found were as follows:-

Physopsis	1,012
Limnaea	1,319
Biomphalaria	229
Planorbis	27
Bulinus Forshali	13

7% of the Physposis were infected.

Urinary examination of 827 Africans in this area revealed that 19% were infected with Schistosoma Haematobium. 71% of those infected were under 20 years of age and only 5% over 40.

In a survey of the same area in 1956, 1,079 Physopsis (13% infected) were discovered.

In September a snail survey in the Matapha area revealed the following:-

PHysopsis	311
Limnaea	109
Biomphalaria	3
Planorbis	14
Bulinus Forshali	7

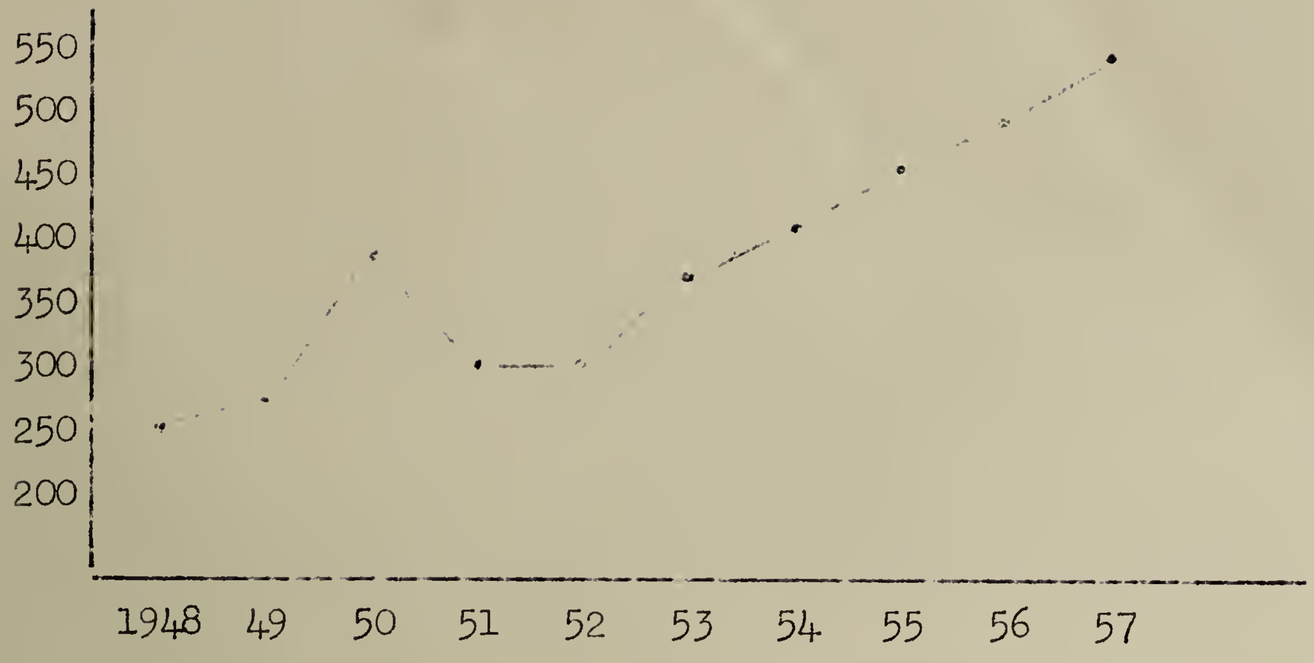
3% of the Physopsis were infected.

On receipt of a report that many children at Lobamba suffered from haematuria, an investigation was carried out at a dam in the area. Within 15 minutes, 60 Physopsis were found, 8 of which were infected. Ten African children living near the dam allhad heavy urinary infection with Schistosoma Haematobium. The dam was treated with Copper Sulphate.

An investigation of the bilharzia position at the Swaziland Irrigation Scheme, Mananga, was also carried out, but owing to the Medical Officer of Health having to leave on his W.H.O. Study course earliet than expected, the investigation could not be completed.

(c) TUBERCULOSIS. The number of cases of tuberculosis reported by Government Hospitals, Medical Missions and private practitioners during 1957 was 544.

The number of cases of tuberculosis reported over the past 10 years is shown in the following graph:-



The percentage of pulmonary and non-pulmonary cases, treated as in-patients, and the percentage of tuberculosis admissions of total admissions, in the two large Government Hospitals, was as follows:

	% Pulmonary Tuberculosis	% Non-Pulmonary Tuberculosis	% T.B. Admissions of Total Admissions
Mbabane Hospital and Hlatikulu Hospital	72%	28%	5%

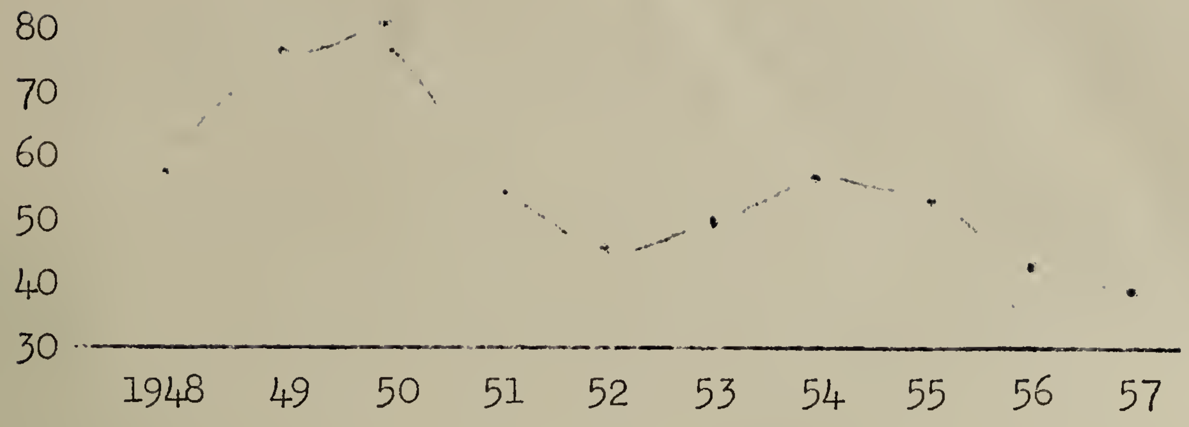
An attempt has been made to concentrate on the out-patient treatment of tuberculosis, the patients being admitted for X-ray, sputum examination and general assessment, and as soon as possible, discharged to their homes, to continue treatment with P.A.S and I.N.H. at the nearest hospital or clinic, re-assessment being carried out at hospital every three months. This method has had very limited success, as only a small minority of patients will attend regularly for treatment. The distance of the home from the nearest clinic or hospital is often a justifiable excuse. The alternative method of retaining patients in hospital for an adequate length of time is impracticable owing to insufficient beds being available and also owing to the Swazi's reluctance to remain in hospital for longer than he feels actively ill.

The report of the W.H.O. Tuberculosis Assessment Team which was in the Territory from October 1956 to February 1957 is still eagerly awaited.

The 12 bedded T.B. ward at Hlatikulu Hospital is constantly full. A similar ward at Mbabane is at present under construction.

(d) LEPROSY. There has been a further small drop in the number of patients at the Mbuluzi Leper Hospital, which is run by the Nazarene Mission. On 31st December 1957, the number of inmates was 40 as against 43 at the end of 1946. During the year there were 18 admissions, 20 discharges and 1 death.

The number of inmates at the Leper Hospital at the end of each year since 1948 has been as follows:-



Leprosy cannot be considered a major health problem in Swaziland, but the well-run Mbuluzi Leper Hospital is a great asset to the Territory.

The full report on the Mbuluzi Leper Hospital by the Superintendent, Raleigh Fitkin Memorial Hospital, will be found in Appendix II (page 29).

(e) POLIOMYELITIS. Only 4 cases of poliomyelitis occurred during the year, 2 of these being Europeans.

The anti-poliomyelitis vaccination campaign started in 1956 had to be suspended early in the year as the Poliomyelitis Research Foundation, Johannesburg, was unable to supply vaccine. An appeal to the United Kingdom was promptly answered and vaccine was flown out in May. A further supply of vaccine from the United Kingdom is expected early in 1958, and this will enable full courses of vaccination to be completed in all cases who have applied for vaccine. A total of 1500 injections were administered in 1957.

It is expected that the Poliomyelitis Research Foundation will again be able to meet Swaziland's requirements later in 1958.

(f) SMALL-POX. No cases of small pox were reported during the year. The vaccination campaign in the south of Swaziland was re-started and a total of 46,782 vaccinations were carried out during the period February - July 1957, 9,726 of these being primary vaccinations. The total number of vaccinations carried out in 1956 was 45,301 and in 1955 the number was 41,058.

(g) ENTERIC FEVER. Seventytwo cases, with 6 deaths, were reported in 1957, as against 66 cases with no deaths in 1956 and 60 cases with 2 deaths in 1955. As in previous years the disease was sporadic in distribution.

(h) DIPHTHERIA. Only 2 cases, with one death, were reported. This disease is nevertheless considered a potential menace, the present position being due to absence of "foci" of infection rather than natural. immunity.

Immunisation will be encouraged.

(i) MENINGOCOCCAL MENINGITIS. Seven sporadic cases of meningitis occurred, all of which were fatal. The causative organism was not determined. These cases have been reported as non-meningococcal meningitis.

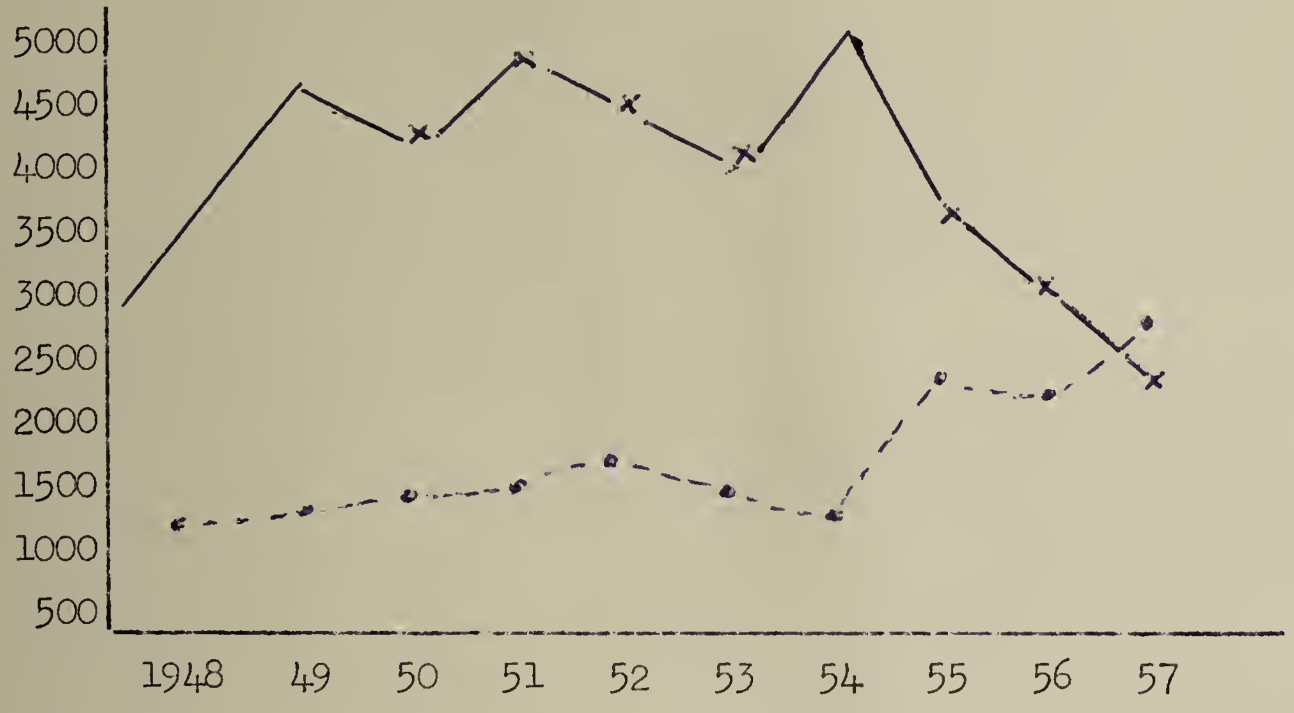
(f) INFLUENZA. In August 1957, the world-wide epidemic of "Asian Influenza" swept into Swaziland and spread with dramatic suddenness. School children formed the most heavily affected section of the population and in some schools between half and a third of the pupils were afflicted. All seriously affected schools were closed for periods of 10 - 14 days. Territorial figures of the number of cases affected are not available, but the experience at Mbabane Hospital was probably

typical of conditions occurring elsewhere in the Territory. Here, where the monthly total of cases diagnosed is approximately 75, with an annual rise to 150-200 in August and September, the number of cases of influenza diagnosed in August 1957 was 1,159.

The disease was mild and in most cases, extremely mild. Although a few cases with severe respiratory complications were treated, no deaths are known to have occurred. Admissions to Government Hospitals during 1957 numbered 268 as against 115 in 1956. No seriological investigations were carried out in Swaziland.

(k) VENEREAL DISEASES. The number of cases of syphilis seen at hospitals and clinics (Government and Mission) fell by 585, while the number of cases of gonorrhoea rose by 185.

The Venereal Disease position over the past 10 years is shown in the following graph:-



x------x-----x Total number of cases of syphilis reported.
•------•------• Total number of cases of gonorrhoea reported.

The distribution of the cases of Venereal Diseases, the number of "re-attendances" dealt with, and the percentage of cases of veneral diseases in relation to the total number of cases seen is tabulated below.

		New Cases	Re-attendances	% of New Cases in relation to Total New Cases
SYPHILIS.	Mbabane Hospital	372	1626	2.2
	Mankaiana Hospital	187	638	2.3
	Hlatikulu Hospital	167	257	1.9
	Raleigh Fitkin Memorial Hospital	201	820	1.6
	Good Shepherd Hospital	82	87	1.6
	Mahamba Methodist Hospital	67	198	3.4
	Clinics - Mbabane District	327	1121	3.8
	Hlatikulu District	391	865	1.3
	Nazarene Mission	357	1293	3.5
	TOTAL	2151	6875	

		New cases	Re-attendances	% of new cases in relation to Total New Cases
GONORRHOEA.	Mbabane Hospital	716	346	4.3
	Mankaiana Hospital	185	243	2.3
	Hlatikulu Hospital	146	296	1.6
	Raleigh Fitkin Memorial Hospital	127	13	1.1
	Good Shepherd Hospital	47	27	0.9
	Mahamba Methodist Hospital	98	11	5.0
	Clinics - Mbabane District	368	79	4.3
	Hlatikulu District	616	365	2.3
	Nazarene Mission	289	150	2.8
	TOTAL	2592	1530	

While the "one-injection" treatment with penicillin is gaining favour, many asymptomatic seriologically positive cases are still treated with arsencials and bismuth.

(l) WHOOPING COUGH. Whooping cough is an endemic rather than an epidemic disease among the indigenous population of Swaziland. There was, however, a sharp rise in the number of cases in the autumn, and throughout the year 776 cases were reported, as against 252 cases in 1956. Six deaths were reported in Government hospitals, and whboping cough was probably responsible for a proportion of the 25 deaths recorded as due to broncho-pneumonia.

(m) MEASLES AND CHICKEN POX. There was nothing noteworthy in respect of these diseases, 179 and 114 cases respectively being reported as against 302 and 140 cases in 1956.

(n) RABIES. Two cases of human rabies occurred in the Bremersdorp area in May. There was some delay in the patients reporting for treatment and one, who had been bitten on the face, died. In November seven persons were bitten by a rabid dog. Full courses of vaccine were given as soon as possible, and up to the end of the year, there had been no sign of the development of rabies in any of these cases.

(o) DYSENTERY. In Government Hospitals and the Raleigh Fitkin Memorial Hospital at Bremersdorp, 464 patients were treated as out-patients and 175 as in-patients. The figures for out-patients are slightly higher than in 1956, while the in-patient figures are considerably lower (175 as against 244). There was a rise in the number of cases reported in the Mbabane District and a fall in the cases reported from Hlatikulu District.

The following table summarises the position:-

	Out-patients		In-patients		Total	
	Bacilliary	Amoebic	Bacilliary	Amoebic	Bacilliary	Amoebic
Mbabane & Mankaiana Districts	228	56	31	65	259	121
Hlatikulu District	5	4	4	25	59	29
Bremersdorp District	90	31	22	28	112	59
TOTAL	373	91	57	118	430	209

(p) INFANTILE GASTRO-ENTERITIS (4 weeks to 2 years)

This condition remains one of the chief scourges, and is, in the main, due to a lack of knowledge of the importance of general hygiene measures, in an attempt to combat which constant efforts are made at all hospitals and clinics to instruct mothers on hygiene and the proper care of infants and their feedings.

In view of the very common custom of feeding infants on thin mealie meal porridge out of filthy feeding bottles, it is surprising that more deaths do not result.

In Government Hospitals and the Raleigh Fitkin Memorial Hospital in 1957, 1,881 cases were treated as Out-patients and 330 as In-patients. Corresponding figures in 1956 were 1,430 and 290. The following table summarises the position:-

	Out-patients	In-patients	Total	Deaths
Mbabane- Mankaiana Districts	888	104	992	14
Hlatikulu District	501	45	546	1
Bremersdorp District	492	181	673	6
TOTAL	1,881	330	2,211	21

(q) TAPE WORM INFESTATION. In May the President of the Swaziland Farmers Association approached the Swaziland Administration on the losses suffered by farmers through "measly" meat, and requested that action be taken to combat tapeworm infestation amongst the African population.

Figures supplied by the Manager of the Meat Control Board, Durban, showed that of the 4,803 head of cattle received from Swaziland in 1956, 9.7% were affected with "measles". The financial loss on these cattle as a result of "measles" was calculated to be £5,300, and further the total loss on all cattle exported from the Territory, plus the losses on locally slaughtered cattle, was thought to be in the neighbourhood of £15,000 per annum.

Figures obtained from the Director of Abattoirs, Johannesburg showed a 2.5% incidence of "measles" in respect of all cattle received there.

Regular meat inspections at Bremersdorp Abattoir have shown the following percentages of "measles affected" carcases:-

1953	18%
1954	10%
1955	10%
1956	6%

During 1956 only 270 African patients attended Government Hospitals for the treatment of tape worm infestation, viz. 1.7% of all "first attendances".

In May an investigation of the incidence of tape worm infestation among the indigenous population was started. It was an extremely rough survey, the individual simply being asked whether or not he suffered from tape worm, or had done so in the past 3 months. The results obtained were as follows:-

(i)

Consecutive Out-patients questioned at	No. questioned	% affected with Tapeworm.
Mbabane Hospital	400	35%
Hlatikulu Hospital	561	14%
Goedgegun Clinic	332	54%
Sipofaneni Clinic	127	26%

(ii) A hut-to-hut survey in the Stegi bushveld:-

No. of persons questioned - 618
% affected with Tapeworm - 16%

These figures taken in conjunction with the small number of patients presenting themselves for treatment with the specific complaint of tapeworm infestation indicate that the average Swazi pays little attention to his tapeworm and does not consider it important enough to warrant a journey for medical attention.

In August a campaign against tapeworm infestation was set in motion. The treatment previously in use (Filix Mas) was abandoned, and the single dosage treatment with dichlorophen was introduced as the routine treatment at all Government Hospitals and Clinics, and all out-patients were questioned as to whether or not they were affected with tapeworm, irrespective of the presenting complaint, and treated if necessary. Further the African Malaria Assistants were supplied with dichlorophen tablets and dosage charts, and instructed to question all people met during the course of their malaria contril duties and to treat all cases found.

The number of cases of tapeworm treated in the course of the campaign since August has been:-

Treated by	Area	No. of cases treated
African Malaria Assistant	Stegi Bushveld	829
" " "	Border Gate, Lesters, Herefords	427
" " "	Gundwini, Hlamteni, Matapha	1,074
" " "	Stegi "top", Mataweni, Mapungwane	1,374
" " "	Sipofaneni Area	983
" " "	Nomahasha, Majembeni, Nkatashane	553
" " "	St. Phillips & Nsoko	550
" " "	Nkambeni and Croydon	580
" " "	Malinda, Mafuteni	1,337
" " "	Nokwane, Ngomane	429
" " "	Gollel, Sitilo	328
Medical Officer (Health)	Health Office Bremersdorp	30
Hlatikulu Hospital	Hlatikulu District	11
Sister i/c Clinic	Goedgegun	54
" " "	Hluti	57
" " "	St. Phillips	116
Nurse i/c Clinic	Mhlotsheni	20
" " "	Sipofaneni	66
" " "	Lubuli	3
Mbabane Hospital +	Mbabane district	78
Nurse i/c Clinic +	Government Farm	13
		6,107
PLUS cases treated at Government Hospitals, (i.e. cases with tapeworm infestation as presenting symptoms)		522
	TOTAL CASES TREATED	6,629
+ Records incomplete		

The campaign will be continued and further surveys will be carried out. Results as regards "measly meat" cannot, of course, be expected for some years. Owing to the impossibility of "follow-up" in a campaign of this sort, it has not been possible

to evaluate the efficiency of dichlorophen treatment. In reports from other parts of Southern Africa, the efficiency of the treatment has been assessed at 80% - 90%.

The treatment has proved extremely popular with the Swazi and no ill effects have been reported, other than two cases who developed severe abdominal pain after taking the tablets.

(ii) NUTRITIONAL AND DEFICIENCY DISEASES.

During the past two years the diseases causing the most deaths among patients in Government Hospitals have been as follows:-

	"Other Deficiency States"	Gastro-Enteritis (4 weeks - 2 years)	Tuber-culosis. (All forms)	Broncho-pneumonia.
1956	16	10	6	7
1957	28	15	22	25

Most of the deaths under "Other Deficiency States" are due to Kwashiorkor. As from 1958, Kwashiorkor will be recorded as such, and not included in "other deficiency states".

The numbers of out-patients and in-patients recorded under the heading "Other Deficiency States" in 1957 were 432 and 223 as against 174 and 143 in 1956.

The numbers of cases of pellagra during 1957 were 270 out-patients and 68 in-patients, as against 107 and 28 in 1956.

The marked increase in the number of cases of deficiency disease is disturbing. It appears that more and more Swazis are abandoning their traditional mixed diet in favour of a diet of mealie meal and little else, and it is particularly disturbing to find more and more babies being weaned onto thin mealie meal porridge, often to enable the mother to return to work soon after delivery.

There is great ignorance of the cause and danger of Kwashiorkor among the indigenous population and in an attempt to combat this a pamphlet on the subject was prepared and issued to all District Commissioners, Teachers, Land Utilization Officers, Veterinary Guards and Domestic Science Instructresses, with the request that knowledge of the condition and its dangers should be propagated whenever possible. Addresses on the subject were also delivered to the Swaziland Farmers Association and the Swaziland African Teachers Association, and an article was published in the local Swazi Press, and a warning on the dangers of Kwashiorkor was given by the Resident Commissioner in his address to the Swazi National Council in July.

The pamphlet issued is reproduced in Appendix III, page 33.

It is thought that much more propaganda and education will be required before there is any improvement in the position, especially as Kwashiorkor appears to have a very poor "news-value".

(iii) SANITATION.

While sanitation in the townships is, on the whole, satisfactory, the same cannot be said of the African "squatters townships" that are arising on the periphery of the larger centres, especially at Mbabane and Bremersdorp. Sanitary facilities in these areas are, to all extents and purposes, non-existent, and the condition is most unsatisfactory. The position is, however, under active consideration at present.

An up-to-date sewerage disposal system is planned for the centre of Mbabane and for Mbabane Hospital. The position at the Hospital is most unsatisfactory, as the effluent from the septic tanks repeatedly floods the french drains.

No steps have been taken to improve rural sanitation. Pit Latrines appear to be the only solution, and experience has shown that in the absence of constant supervision, these become most insanitary and a source of profuse fly-breeding. It is felt that an ill-kept pit-latrine is a greater menace to health than is the "bush-sanitation" normally practiced.

(iv) WATER SUPPLIES.

The position as far as the water supplies in the larger centres remain substantially the same, the purification methods in use leaving much to be desired. The automatic chlorinator is due to be installed at the Mbabane Water Works early in 1958.

Routine bacteriological examinations have been carried out throughout the year, and the results have been surprisingly satisfactory.

The excessive alkalinity of the water at Mbabane noted in 1956, and arising from the corrosion of the asbestos cement piping in use, has not been the cause of any complaints during the year. Estimation of the pH of the water towards the end of the year gave figures varying between 7 and 11.

(v) FOOD SUPPLIES.

(a) MEAT. Regular meat inspections were carried out at the Mbabane and Bremersdorp abattoirs by Health Inspectors. At other centres where no Health Inspectors are stationed, meat inspection was carried out whenever possible by Stock Inspectors.

A significant percentage of bovine carcases was again found to be infected with cysticercus bovis, the figures being:-

	No. of carcases examined	% Infected with cysticercus bovis
Mbabane	599	5%
Bremersdorp	1,787	7.5%

The results of meat inspection carried out by Stock Inspectors were as follows:-

	No. of carcases examined	% Infected with cysticercus bovis
Hlatikulu	226	1%
Stegi	262	5%
Goedgegun	167	2%

Other conditions discovered at meat inspections at Mbabane and Bremersdorp abattoirs are listed below:-

	Bovines	Pigs	Sheep
Fasciola hepatica	164	-	100
Stilesia hepatica	-	-	86
Echinococcus	6	-	8
Other conditions (Abcesses, Bruising, Lymphadanitis, Pneumonia, etc)	25	7	-

(b) OTHER FOOD SUPPLIES. General dealers stores, butcheries, bakeries, eating houses, hotels and dairies were inspected throughout the territory by Health Inspectors as often as other duties allowed; various food-stuffs were condemned, and advice given on matters of hygiene and sanitation. In the Mbabane-Pigg's Peak-Mankaiana area, 540 inspections were carried out, and in the Bremersdorp-Stegi-Hlatikulu-Gollel area, 255 inspections were made. It must be pointed out that the Health Inspector covering the latter area spends a considerable amount of his time on malaria and bilharzia control, as against routine Public Health duties.

CHAPTER 3.

HOSPITALS AND CLINICS.

(a) GOVERNMENT HOSPITALS AND CLINICS.

There has been a further increase in the amount of work carried out at Government Hospitals and clinics, both in-patients and out-patients having increased by 9%.

The year's work is summarised in the tables which follow:-

Staffing Position at Government Hospitals, 1957

	Mbabane Hospital.	Hlatikulu Hospital	Mankaiana Hospital
Medical Officers	3	2	-
Matrons	1	-	-
Nursing Sisters, Hospital	4	3	1
Nursing Sisters, Clinics	-	2	-
Pharmacist/Storekeeper	1	1	-
Radiographer	1	-	-
Hospital Housekeeper	1	-	-
Senior Hospital Assistant	1	-	-
Hospital Assistant	-	1	1
Laboratory Assistant	1	1	-

contd.

	Mbabane Hospital	Hlatikulu Hospital	Mankaiana Hospital
Dispenser	1	1	-
Pupil Dispenser	-	1	-
Ward-master	1	-	-
Nurses, Hospital	25	21	4
Nurses, Clinics	2	2	-
Out-patient Attendants	2	-	-
Nurse Aides	1	-	1
Ambulance Driver	1	1	-
Ward Attendants	5	5	-
Orderlies	5	5	-
Dispensary Orderlies	2	1	-

In-patient treatment in Government Hospitals, 1957

	Admissions		Deaths		Daily Average No. of In-patients		Operations.	X-Ray Examinations.	X-Ray Screenings.	Beds	
	E	A	E	A	E	A				E	A
Mbabane Hospital	313	3906	2	137	5	184	1049	2252	91	10	118
Hlatikulu Hospital	64	1559	1	47	1	68	259	404	70	8	+ 72
Mankaiana Hospital	-	1869	-	16	-	34	48	-	-	-	16
Territorial Total for 1957	377	7334	3	200	6	286	1356	2656	161	18	206
Territorial Total for 1956	341	6711	5	154	6	241	1043	2595	164	18	182

Total Admissions 1957 = 7,711

Total Admissions 1956 = 7,052

Daily Average No. on In-patients 1957 = 292

Daily Average No. of In-patients 1956 = 247

+ (24 of these beds were brought into use in the last quarter of the year).

Out-patients attended at Government Hospitals & Clinics 1957

	New Cases		Re-Attendances		Total Attendances.
	E	A	E	A	
MBABANE DISTRICT.					
Mbabane Hospital	3511	16694	3783	9457	33,465
Mankaiana Hospital	44	8101	49	2850	11,044
Horo Clinic	2	6911	-	2903	9,816
Government Farm Clinic	1	3467	-	1059	4,527
+ Lesters Clinic	-	1657	-	440	1,987
Total attendances Mbabane District 1957	3558	36830	3832	16699	60,839
" " 1956					53,874
HLATIKULU DISTRICT					
Hlatikulu Hospital	590	8881	598	4455	14,524
Goedgegun Clinic	347	3041	21	4407	7,816
Hluti Clinic	117	2127	79	1582	3,915
Mhlosheni Clinic	54	3335	11	1376	4,776
Sipofaneni Clinic	50	1555	-	572	2,177
Gollel Clinic	4	632	-	-	636
+ Lubuli Clinic	53	1328	2	390	1,813
++ St. Phillips Mission	-	3759	-	1138	4,897
Total Attendances Hlatikulu District 1957	1215	24658	711	13920	40,554
" " 1956					39,440

Total Out-patient Attendances 1957 = 101,393
" " " " 1956 = 93,314

+ Clinics controlled by Swazi National Treasury
++ Roman Catholic Mission Clinic, visited by and supplied by Medical Officer in Charge, Hlatikulu.

The detailed return of Out-patients and In-patients seen at Government Hospital will be found in Appendix IV on page 35.

BUILDING OPERATIONS.

New wards for African and Eurafrican patients (24 beds) and the new kitchen at Hlatikulu Hospital have been completed and are in use. The laundry has been mechanised, an existing building has been converted into Sisters Quarters, and a small cottage for the Sister in Charge has been built. Building continues on the new African wards, Out-patient Department and Dispensary. These additions are expected to be completed by August 1958.

The small 16 bedded African Hospital at Pigg's Peak has been completed and the Staff quarters are almost complete. The date of opening of the hospital will depend on when it is possible

to provide an adequate water supply.

Work has commenced on the T. B. Ward at Mbabane Hospital and completion is expected in the middle of 1958.

Improvements and renovations are at present being carried out at Mankaiana Hospital. A Consulting room/Dispensary Block, Labour Ward, Kitchen and Covered Way are to be built and various minor alterations and extensions carried out.

Maintenance work and minor improvements have been carried out at Sipofaneni Clinic and Mhlosheni Clinic, and it has been possible to abandon the shocking hut at Gollel, where the Medical Officer, Hlatikulu, was expected to see patients under appalling conditions, as one of the local farmers has built a most suitable consulting room at Vimy Ridge, 2 miles from Gollel (and 2 miles nearer the "Native Area"), and this consulting room is now used instead of the hovel at Gollel.

(b) MISSION HOSPITALS AND CLINICS.

The work carried out in 1957 by the Medical Missions is summarised below:-

IN-PATIENTS.

	Admissions		Deaths		Daily Average No. of In-patients	Beds
	E	A	E	A		
Raleigh Fitkin Memorial Hospital, Bremersdorp	211	2681	1	95	124	140
Good Shepherd Hospital, Stegi	29	718	+	+	14	30
Mahamba Methodist Hospital,	21	897	-	7	44	45

+ Records incomplete.

At the Raleigh Fitkin Memorial Hospital 797 operations were performed, and 735 radiographical examinations and 8 screenings were carried out.

In addition to the In-patients treated at Raleigh Fitkin Memorial Hospital, an additional 1138 cases were treated as In-patients at Clinics controlled by the Raleigh Fitkin Memorial Hospital.

OUT-PATIENTS.

	New Cases		Re-Attendances		Total Attend-ances.
	E	A	E	A	
Raleigh Fitkin Memorial Hospital	1073	12579	154	7829	21,635
Balegane Clinic	-	250	-	567	817
Endingeni Clinic	1	4747	-	1929	6,677
Pigg's Peak Clinic	20	2449	10	1440	3,919
Mafuteni Clinic	-	295	-	551	846
Bhekinkosi Clinic	-	988	-	568	1,556
Mliba Clinic	-	584	-	729	1,313
Ebenezer Clinic	-	932	-	256	1,188
Mayiwane Clinic	-	415	-	1083	1,498
Stegi Clinic	37	2018	72	2039	4,166
Total Nazarene Mission Stations	1131	25257	236	16991	43,615
Good Shepherd Hospital	477	4815	179	1632	7,103
Big Bend Clinic	-	630	-	165	795
+ Nomahasha Clinic	-	1845	-	408	2,253
Total Roman Catholic Mission Stations	477	7290	179	2205	10,151
++ Mahamba Methodist Hospital	103	1940	227	3934	6,204

+ Swazi National Treasury Clinic, visited by Medical Officer from Good Shepherd Hospital, in his capacity as District Surgeon.

++ Figures from Gege and Dwalile Clinics not available.

At the clinic run at Our Lady of Sorrows School (Roman Catholic Mission), with the aid of a Government subsidy, 7,247 new cases and 511 re-attendances were dealt with.

(c) HAVELOCK MINE HOSPITAL.

The number of Africans, who were not mine employees or their dependants, who were treated at Havelock Mine Hospital, was as follows:-

No. of admissions	143
No. of out-patients (new cases)	111
" " " " (re-attendances)	18
Daily average no. of in-patients	4.2

CHAPTER 4

MATERNITY SERVICES.

Ante-natal clinics are held at the hospitals and at most of the outlying health centres, and maternity wards at most hospitals are now so popular that in order to counteract the over-crowding, it will probably shortly be necessary to restrict admissions to primiparous women and to those multiparous patients in whom difficulties can be foreseen.

The number of confinements and ante-natal examinations dealt with during the year were as follows:-

	No. of Ante-Natal Examinations.	Confinements.
Mbabane Hospital and Clinics	1,998	512
Hlatikulu Hospital and Clinics	3,456	189
Mankaiana Hospital	422	136
Raleigh Fitkin Memorial Hospital and Clinics	4,557	794

CHAPTER 5

TRAINING OF AFRICAN NURSES.

Nurses are trained at the Ainsworth Dickson Nursing College, attached to the Raleigh Fitkin Memorial Hospital at Bremersdorp, for both the High Commission Territories Nursing Council Certificates and for the Swaziland Executive Nursing Committee Certificates. The minimium educational standard for the latter is only Standard 6, and it is hoped that as more candidates with Junior Certificate come forward, this "lower standard" qualification will fall away.

The results of examinations held during the year were as follows:-

HIGH COMMISSION TERRITORIES NURSING COUNCIL.		
Medical & Surgical Nursing.	Passed	Failed
Preliminary Examination	4	-
Final Examination	1	3
Midwifery		
Part I	1	-
Part II	2	-
SWAZILAND EXECUTIVE NURSING COMMITTEE.		
Preliminary Examination	10	5
Final Examination	7	-

The number of nurses in training at the end of 1957 was as follows:-

1st Year	9
2nd Year	13
3rd Year	9
4th Year	7
Midwives	3
	41

CHAPTER 6

LABORATORY SERVICES.

Owing to shortage of staff, the Public Health Laboratory at Bremersdorp was unable to undertake routine pathological examinations until December 1957. The examinations were in consequence carried out at the South African Institute for Medical Research in Johannesburg.

The examinations of urine, faeces, sputa, bacteriological smears and blood films - and the carrying out of blood counts and sedimentation rates were carried out as before at Mbabane and Hlatikulu Hospitals by the Laboratory Assistants.

CHAPTER 7

VITAL STATISTICS.

The registration of births and deaths is compulsory only in the case of European inhabitants of Swaziland, and the few statistics available are consequently of limited importance.

Figures for 1957 are as follows:-

Total European Population (1956)	5932
European Births	74
European Deaths	12
Deaths under 1 year among infants born in 1957	Nil.

The causes of death were as follows:-

Diseases of the heart and circulatory system	5
Carcinoma (Liver, Bowel & Liver, Melanoma)	3
Accidental	2
Uraemia and Diabetes	1
Bronchopneumonia	1

CHAPTER 8

PRISONS

Medical inspections of the prisons at Mbabane, Hlatikulu and Bremersdorps are carried out weekly, and sanitary conditions in the prisons remain satisfactory. The health of the prisoners during the year has been good.

CHAPTER 9

LEGISLATION.

The following legislation, affecting the Medical Department, was enacted during the year:-

Swaziland Abattoir Regulations Amendment
(High Commissioner's Notice No. 22 of 1957)

Amendment to Stegi Township Regulations,
(High Commissioner's Notice No. 18 of 1957),

Bremersdorp Public Swimming Bath Regulations,
(High Commissioner's Notice No. 40 of 1957),

Sanitary Service Established in Urban Area of Stegi,
(Government Notice No. 20 of 1957),

Appointment of Chairman of the High Commission Territories
Nursing Council,
(High Commissioner's Notice No. 103 of 1957).

CHAPTER 10.

FINANCE

The financial statment of the Department for the period 1st April 1956 to 31st March 1957 is as follows:-

	£	
Revenue.		
Hospital, Health Centre and other fees	3,802	
Expenditure;		
Personal Emoluments	46,868	
Travelling Expenses	2,438	
Allowances and Fees	1,197	
Maintenance of Patients and purchase of medicines	18,236	
Laboratory Services, S.A. Institute for Medical Research	380	
Maintenance of Lunatics	3,462	
Hospital Equipment	2,435	
Uniforms, African Staff	680	
Vaccinations	297	
Subsidies for Medical Services: Church of Nazarene Mission of South Africa £6,410 Red Cross £75, Roman Catholic Mission £100, Our Lady of Sorrows School £200, Mahamba Mission £1,340, Catholic Mission Stegi £1,180,	8,891	
Anti-Malaria Measures	391	
High Commission Territories Nursing Council, Travelling and other expenses	87	
Upkeep of grounds	56	
Upkeep and Operation of X-ray Plants	576	
Transport of Stores	2,755	
Bilharzia Control Measures	1,102	
Upkeep of Vehicles and Electric Light Plant	1,693	
Purchase of Equipment for Pigg's Peak Hospital and Hlatikulu Hospital Extensions	2,662	
Purchase of Land Rover	857	
Expenses W.H.O. Tuberculosis Assessment Team	216	
Contribution to C.D.W Schemes ex Territorial Funds,		
Extensions Mbabane & Hlatikulu Hospitals	600	
Anti-Malaria & Public Health Campaign	2,305	
Leper Hospital	419	
Hlatikulu Hospital Extensions	5,000	
Total Territorial Expenditure		103,603
C.D.W. Schemes expenditure		
D.1085 Extensions Mbabane & Hlatikulu Hospitals	92	
D.1505 Extensions Medical Services in the Lowveld	217	
D.2711 Construction T.B.Wards Mbabane	4	
D.2712 Quarters & Equipment, Pigg's Peak Hospital	911	
D.2713 Anti-Malaria & Public Health Campaign	8,040	
D.2715 Leper Settlement	1,258	
D.2782 Hlatikulu Hospital Extensions	1,762	12,284
Total Expenditure on Medical and Sanitary Services		115,887
Total Revenue of Territory		1,207,540
The relationship of Medical expenditure (excluding C.D.W. Fund expenditure) to total revenue of Territory		8.5%

CHAPTER 11

PUBLICATIONS

Two papers, "Past and Present Position of Malaria in Swaziland" and "Malaria Control in Swaziland - Some Observations

during the First Year of Partial Discontinuation of Insecticides", by Dr. O. Mastbaum, were published during the year in "Journal of Tropical Medicine and Hygiene".

CONCLUSION.

Dr. O. Mastbaum, Malaria Medical Officer, was awarded the O.B.E in the Birthday Honours List. The recognition of this officer's outstanding work in Malaria Control is warmly welcomed by the Department.

I wish to express my sincere appreciation of the loyal and efficient manner in which members of the Department carried out their duties during the year.

B. D. WHITWORTH

DIRECTOR OF MEDICAL SERVICES.

MALARIA CONTROL UNIT AND PUBLIC HEALTH LABORATORY, BREMERSDORP, ANNUAL REPORT 1957.

MALARIA CONTROL.

GENERAL. Rainfall in inches as recorded at the Bremersdorp meteorological station is shown in Table I. For comparison, average rainfall figures for the last six years are also listed.

TABLE I - MONTHLY RAINFALL AT BREMERSDORP.

	1957.	Average over last 6 years.
January	2.12	5.3
February	4.02	6.05
March	3.95	4.13
April	6.33	1.85
May	0.05	1.53
June	1.37	0.52
July	3.90	0.42
August	1.41	1.1
September	4.58	1.39
October	3.94	3.85
November	2.29	5.46
December	1.91	5.27
Total	35.87	36.87

MALARIA TRANSMISSION.

As a result of the achieved complete interruption of Malaria transmission and an overall parasite rate of well under 1% in all children observed in 1956 it was decided to extend the area of discontinuation of anti-mosquito measures to approximate 2/3 of all malarious areas in the territory. A "cordon sanitaire" along the eastern, northern and southern borders to a width of approximately 15 miles was established (including the main irrigation schemes) and all huts in these areas received two treatments with a residual insecticide. As in previous years B.H.C. 50% wettable powder with a gamma content of 10% was used and the surface concentration aimed at was 25 mgm per square foot.

A total of 44,287 huts were sprayed during transmission season. This represents a decrease of over 100,000 huts in comparison to the number of huts treated during the years of complete, country wide control.

In the areas of discontinued control surveillance teams operated with the object of investigating the disease and the density of vector mosquito breeding.

MALARIA INCIDENCE.

A total of 6,798 specimens of blood from infants and children were examined durin g the whole year, i.e. during the transmission season and non-transmission season. Except for 87 specimens, which were sent in by Hospitals, Health Centres and Private Practitioners all others were collected by random sampling similar to the methods used in previous years.

Amongst the above total of 6,798 blood-slides malaria parasites were present in 64. An analysis of all positive cases revealed that 36 of the 64 cases were either arrivals from uncontrolled neighbouring territories (mainly from Portuguese East Africa) or the infection was acquired by visits of Africans into these neighbouring territories. Only 28 positive cases were discovered

during the year in Swazi children who apparently had not left the territory.

Malaria incidence during the Transmission Season 1957 (January-May) was assessed by examination of 5,427 specimens of blood and the results are shown in the following tables:-

1. SPRAYED AREAS ALONG THE EASTERN NORTHERN AND SOUTHERN BORDER OF SWAZILAND.

	No. Examined	No. Positive	% Positive
Infants 0 - 12 months	689	1	0.14%
Children 1 - 5 years	1,621	7	0.43%
Children 6 - 16 years	693	2	0.28%
Total	3,003	10	0.3%

2. AREAS WHERE CONTROL MEASURES HAVE CEASED.

	No. Examined	No. Positive	No. Positive
Infants 0 - 12 months	322	0	0.0%
Children 1 - 5 years	768	2	0.26%
Children 6 - 16 years	378	0	0.0%
Total	1,468	2	0.14%

3. IRRIGATION SCHEMES ALONG EASTERN BORDER.

	No. Examined	No. Positive	No. Positive
Infants 0 - 12 months	151	1	0.66%
Children 1 - 5 years	419	9	2.1%
Children 6 - 16 years	205	6	2.9%
Total	775	16	2.1%

4. An isolated area of small population where chemoprophylactic with Pyrimethamine as the full measure of Malaria Control is in progress.

No. examined: 181, Parasite rate: 0.0%

The slightly higher incidence of malaria in the sprayed areas can possibly be explained by the fact that most of these areas are in close proximity to Mozambique while this is not the case in areas of discontinued control. The influence of neighbouring uncontrolled areas is illustrated by the following observation: three parasite positive cases (including one infected infant in Table 1) acquired their infection by sleeping outside their huts which were in this instance only ½ mile away from the nearest unsprayed hut in Portuguese Territory.

On the whole, however, malaria incidence in sprayed as well as in non-sprayed areas was exceedingly low and it is of special interest that no transmission has taken place in all areas where control has ceased in spite of considerable breeding of A. gambiae in these areas.

On the main Irrigation Schemes the results (see Table 3) are not quite so favourable. However, the migration of the population to and from non-controlled neighbouring areas is so great

that some of the cases may have contracted malaria outside the territory without the knowledge of the Department. The ever increasing influx of foreign Africans with their families as well as frequent visits of Swaziland residents to neighbouring uncontrolled territories constitutes a real problem because it is almost impossible for the fieldstaff at our disposal to spot each and every case. In the presence of Malaria vectors the potential danger of these parasite carriers to the protected community is obvious.

On account of these difficulties it has been decided to augment spraying on these irrigation schemes by the regular issue of pyrimethamine. The drug is issued by specially trained Africans of the Department to all children individually at Swaziland Irrigation Scheme twice a month; at Mbuluzi Estates and Big Bend areas once a month, the dosage issued is 25 mgm to children above three years of age and half the dose to infants and children up to three years. All recruits arriving at these places from other territories will receive once only 300 mgm of Chloroquine base. At least once a month bloods from all children and recruits will be examined. It is hoped that pyrimethamine in this dosage will have the same good effect as already observed amongst a small group of people at the Abercorn Drift area.

MALARIA INCIDENCE DURING THE NON TRANSMISSION SEASON OCTOBER-DECEMBER 1957.

A total of 1,284 bloods from infants and children were examined during the three months October - December 1957. The results are set out in the following tables (5 - 8).

5. SPRAYED AREAS ALONG EASTERN BORDER.

	No. examined	No. positive	No. positive
Infants 0 - 12 months	93	Nil	0.0%
Children 1 - 5 years	245	1	0.4%
Children 6 - 16 years	183	Nil	0.0%
Total	521	1	0.2%

6. AREAS WHERE CONTROL MEASURES HAVE CEASED.

	No. examined	No. positive	No. positive
Infants 0 - 12 months	39	Nil	0.0%
Children 1 - 5 years	103	Nil	0.0%
Children 6 - 16 years	69	Nil	0.0%
Total	211	Nil	0.0%

7. IRRIGATION SCHEMES.

	No. examined	No. positive	No. positive
Infants 0 - 12 months	87	Nil	0.0%
Children 1 - 5 years	168	2	1.2%
Children 6 - 16 years	131	Nil	0.0%
Total	386	2	0.52%

8. PYRIMETHAMINE EXPERIMENT AT ABERCORN DRIFT (OCTOBER-DECEMBER)

The issue of the drug was discontinued during July, August and September and re-issued again in October.

No. examined: 166, No. positive 2.

Two parasite-positive cases were observed in December and were new arrivals from Zululand who had not received Pyrimethamine previously.

In addition to the two parasite-positive cases at Irrigation Schemes (see Table 7) and the one in Table 5, another 15 positive cases were detected amongst children living in districts along the Eastern border who had just arrived or who had been visiting neighbouring uncontrolled territories previously.

Although the malaria position amongst indigenous Swazi children during the non-Transmission Season can be regarded as very satisfactory (see Table 5 - 7) the constant infiltration of parasite carriers from neighbouring territories causes grave concern to this Department as the final aim of eradication of the disease in Swaziland is difficult, if not impossible, to achieve under present conditions.

ENTOMOLOGICAL OBSERVATIONS.

ANOPHELES GAMBIAE has never disappeared throughout the years of malaria control. Although in reduced numbers, larvae of this vector were always found in many breeding places in the bushveld, but it was almost impossible to find an adult *A. gambiae* inside human habitations. During this year, although climatic conditions did not favour widespread and abundant breeding, the number of larvae present in non-sprayed areas was not only far greater than in previous years but exceeded those in sprayed areas. Adult *A. gambiae* made their re-appearance in huts of the non-sprayed areas, but were very small in numbers never exceeding about 1 in 10 huts tested. It remains to be seen whether the number of *A. gambiae* inside huts will increase in coming years until the numbers finally reach the pre-control level and, if in spite of this, malaria transmission can be kept at zero, in other words, can a true state of "Anophelism without malaria" be established permanently in Swaziland.

It was thought that *A. funestus funestus* had completely disappeared from Swaziland, but in some isolated bushveld districts a few larvae of this second vector mosquito have been observed. No adults of *A. funestus funestus* have been found in human habitations this year. A careful watch on this mosquito will have to be made in the coming season.

It is of entomological interest that in one sprayed bushveld area (Nkambeni) a few specimens of *Phlebotomus* were recovered from huts. These were identified as *P. freetownensis* by Dr. B. de Meillon of the South African Institute for Medical Research. It has to be ascertained in future whether the *Phlebotomus* has developed a resistance to benzine hexachloride.

FUTURE INTENTIONS.

No changes in malaria control operations along the Eastern, Northern and Southern borders is contemplated in the Transmission Season 1957/58 as it is felt necessary to consolidate the results achieved and also more observations are needed on the behaviour of the malaria vectors and especially on their increase inside human habitations. It is hoped that the Department will have the assistance of th World Health Organisation's *A. gambiae* Investigation Team, consisting of an entomologist of world repute and two assistants. It is expected that the team will arrive in February 1958 and will work in Swaziland for about two months.

Although malaria control in Swaziland has produced remarkable results, it must be emphasised that eradication of the disease can not be achieved easily or in a short space of time. Surveillance and "mopping up" operations, which consist mainly

in the immediate treatment of all parasite positive cases, has to be continued for some years. This may sound simple, but from the Administration's point of view, the maintenance of these activities is rather costly. Although expenditure on the part of the malaria-control unit has decreased this year by about 30% of the original amount, a further reduction of cost cannot be expected even if spraying of the "cordon sanitaire" will be discontinued in future.

It is impossible to predict at this stage for how many years the malaria unit as a separate unit, has to be maintained, as this will depend largely on the co-operation of the neighbouring Portuguese and Zululand authorities, and on a successful malaria control scheme along the borders of Swaziland. However, in the light of past experience, there can be little doubt that eradication of malaria in the territory is attainable.

PUBLICATION.

In May 1957, the paper "Past and Present Position of Malaria in Swaziland" was published in the Journal of Tropical Medicine and Hygiene. A second paper entitled "Malaria Control in Swaziland - Some observations during the first year of partial discontinuation of insecticides" was published in the same Journal in August 1957.

LABORATORY.

The routine section of the Public Health Laboratory in Bremersdorp was re-opened in December and 437 specimens from Hospitals, Health Centres and Private Practitioners were examined.

As the number of specimens examined this year is too small for statistical evaluation this will be included in next year's report.

APPENDIX II

ANNUAL REPORT OF MBULUZI LEPROSY HOSPITAL : 1957.

The following statistics give some details regarding the work going on at the Mbuluzi Leper Colony during the past year. There is a gradual diminution in the number of patients admitted each year. This year 18 were admitted and 20 discharged. There has been little need for compulsion in getting patients to come in. The news of the successful treatment and care of patients seems to be spreading thnoughout the Territory.

Diaminodiphenylsulphone is still the chief drug used in treatment, but of great importance in the rehabilitation of the patients is the improved diet and good hygienic conditions under which they live, together with the occupational and recreational activities in which they are encouraged to engage. A school with an average attendance of 10 is carried on by an ex-patient for the children and adolsecents in the Colony. There is the problem of discipline and maintaining the morale of a group of such patients isolated ffom friends and families. The devoted service and spiritual ministrations of the resident staff have been much appreciated in this respect.

Visitors are always warmly welcomed by the patients. The regular visits of members of the Red Cross Society from Mbabane, bringingwool for occupational therapy and other comforts, are always awaited with much delight. The visit of His Honour the Resident Commissioner and Mrs. Marwick at Christmas time brought great joy to the patients; gifts were distributed and a fine rendering of the Nativity was given by the patients. In July we had a visit from Mrs. L. R. Chapman, General President of the Nazarene Foreign Missionary Society, who was making a tour of the mission stations of the Church of the Nazarene in Africa; we took advantage of the occasion of her visit to open the fine new church building, which had been built from funds provided by the Mission to Lepers. The patients also enjoyed the visit of Dr. B. Whitworth, Director of Medical Services.

1. STAFF.

Dr. David Hynd, C.B.E.,	Medical Superintendent,
Miss E. Cole, S.R.N.,S.C.M.,	Matron
Miss Betty Mamba	Nurse
Rev. Samuel Dlamini	Chaplain & Liaison Officer
Mirs. Prisca Manana	Teacher
2 Labourers.	

I make a visit every two weeks for supervision of treatment and for administration purposes. The great need of telephonic communication with an isolated Institution of this kind has been brought to the notice of the Government again, and it is hoped that steps may be taken by Government in the coming year to provide telephonic communication with the Colony.

II. FINANCIAL.

The following is a statement of the running cost for the year ending 30th April 1957:-

Food	668: 8: 11.
General Supplies	127: 8: 7d.
Wages, African Staff	394: 15: 10.
Travelling Expenses	65: 4: -.
Medical Supplies	169: 16: -d.
Transport & Railage	142: 19: 1.
Repairs	84: 16: 6.
Miscellaneous	74: 7: 10.
Ambulance Maintenance	115: 7: 11.
" Depreciation	62: 10: 0.
	£1,905: 14: 8.

The services of the Medical Superintendent, the Matron and clerical staff are supplied gratuitously from the funds of the Church of the Nazarene. The Colony is run as a department of the Raleigh Fitkin Memorial Hospital, Bremersdorp. The Swaziland Government, which owns the buildings, has effected some repairs during the past year. The Government provides an annual grant of £1,574 towards the running of the Colony, for which we are grateful.

Donations have also been received from the Mission to Lepers, London, and from overseas members of the Church of the Nazarene, which have enabled us to meet the above expenditure.

III. STATE DURING THE PAST YEAR.

Number of patients, December 1956 ...	43
" " " " 1957 ...	40

IV. ADDITIONS TO POLULATION.

	Males	Females.	Total.
Admissions	11	4	15
Re-admissions	-	3	3
	11	7	18

V. LOSSES IN POLULATION.

	Males	Females	Total
Deaths	1	-	1
Desertions	-	-	-
Discharges	11	9	20
Transferred to Transvaal	-	1	1
	12	10	22

VI. ORIGIN OF PATIENTS ADMITTED.

District	Males	Females	Total	Percentage.
Mbabane	4	4	8	44.4
Stegi	1	1	2	11.1
Bremersdorp	1	1	2	11.1
Pigg's Peak	4	1	5	27.8
Transvaal	1	-	1	5.6
	11	7	18	100.0%

VII. DURATION OF DISEASE BEFORE ADMISSION.

DURATION.	ADMISSIONS.	PERCENTAGE.
0-1 years	9	50.0
1-2 "	2	11.1
2-3 "	2	11.1
3-4 "	1	5.6
4-5 "	3	16.6
5 plus	1	5.6
	18	100.0%

VIII. CLASSIFICATION ON ADMISSION.

TYPE	ADMISSIONS.	PERCENTAGE.
Lepromatous	4	22.2
Neural	12	66.7
Combined Neural and Lepromatous	2	11.1
	18	100.0%

Of the 18 patients admitted to the Colony, the following gives the type of the disease according to sex:-

TYPE	MALES	FEMALES	TOTAL	PERCENTAGE.
Lepromatous	3	1	4	22.2
Neural	9	3	12	66.7
Neural & Lepromatous	1	1	2	11.1
	13	5	18	100.0%

IX. AVERAGE AGE ON ADMISSION.

The average age on admission was 28.2 years.

X. PROPORTION OF CHILDREN TO TOTAL ADMISSIONS.

There were 2 admissions of children under the age of 16 years out of a total of 18 admissions, i.e. 11.11%

XI. TREATMENT.

The attendances at the Dispensary were	14,094
Admissions to wards	22
In-patient days	4,797

The following were the diseases treated:-

Arthritis	1
Ill-defined	1
Blindness	2
Lepra Reaction	11
Cerebral affection	1
Trophic ulcer	6
	22

XII. LABORATORY REPORT.

139 smears from patients were examined during the year for the presence of B. Leprae with the following results:-

	POSITIVE		NEGATIVE.	
	Nasal	Skin	Nasal	Skin
Lepromatous	-	37	-	16
Neural	-	4	-	75
Neural & Lepromatous	-	1	-	6
		42		97

I wish to thank the members of the staff for their co-operation and self-sacrificing efforts, which have been largely responsible for the good therapeutic results obtained and the happy atmosphere evident amongst the patients.

DAVID HYND

MEDICAL SUPERINTENDENT.

APPENDIX III.

Medical Headquarters Office,
P.O. Box 5,
Mbabane.

22nd August 1957.

TO: ALL DISTRICT COMMISSIONERS.

KWASHIORKOR

The incidence of this serious nutritional disease is on the increase in Swaziland, and I feel ignorance of proper infant feeding is largely to blame.

I have consequently had pamphlets printed on this subject, in English and Swazi, and the Director of Land Utilization and Director of Education have agreed that certain members of these staffs will assist in propagating information on Kwashiorkor.

I should be obliged if you also could assist in this matter, by bringing this information to the notice of the Swazi people.

I am attaching 20 copies of the pamphlets, and would be glad if you could make use of them.

I feel the pamphlets should be given to those people who can disseminate knowledge to the general population, and not simply handed out to members of the public.

COPIES TO: Government Secretary,
Director of Land Utilization,
Director of Education (for information).

AND TO: Medical Officer i/c Mbabane Hospital,
Medical Officer i/c Hlatikulu Hospital,
Medical Officer (Health), Public Health Laboratory,
Sister i/c Mankaiana Cottage Hospital,
Medical Superintendent, Raleigh Fitkin Memorial Hospital,
Medical Superintendent, Good Shepherd Hospital,
Medical Superintendent, Mahamba Mission Hospital,
Dr. Brocklehurst, Malkerns,
Dr. R.J. Lockhart, Bremersdorp,
Dr. D.F.S. Feneysey, Mliba,
Dr. N. Wood, Sicunusa,
Dr. W. Davidson, Swaziland Irrigation Scheme, Managa,
Dr. E. D. Arkell, Pigg's Peak,
Dr. W. O. Harrison, Havelock Mines, for information.

Copies of the pamphlet may be obtained from this office if required.

B. D. WHITWORTH,

DIRECTOR OF MEDICAL SERVICES.

KWASHIORKOR.

It is desired to bring to the notice of the Swazi people a most serious disease of infants and young children which is caused by faulty feeding.

This disease is known as KWASHIORKOR, and it is only in recent years that the disease has been recognised, and its true cause understood. The disease occurs in many parts of the world and is now recognised as the most important nutritional disease in the world. Not only is the disease often fatal, but a proportion of those who recover will be affected by a damaged liver for the rest of their lives.

The incidence of this disease appears to be increasing in Swaziland and in 1956 it caused more deaths in Government Hospitals than any other single disease.

It is most important that the people of Swaziland should know about this disease, as its effects are most serious, and whilst prevention is simple, cure is difficult.

An infant or child affected by this disease develops swelling of the face, feet and legs - and sometimes of the whole body; severe loss of appetite and often diarrhoea; dark coloured rashes on the legs and arms, often with peeling of the skin; and changes in the hair which becomes lighter in colour and loses its crinkle.

The disease most commonly occurs in infants soon after they are taken off the breast, but it also occurs in children up to 3 or 4 years of age.

The disease is caused by faulty feeding and occurs when children are fed on too much mealie meal and not enough of the other types of food. It is not caused by too little food, but by the wrong sort of food.

Infants should not be weaned too early. The best food for an infant is breast milk, and the baby should not be taken off the breast early unless it is absolutely necessary to do so. Babies should be breast fed for at least nine months.

If it is necessary to take a baby under 9 months old off the breast, it is absolutely essential to feed the baby on cow's milk or some form of dried milk, if cow's milk is not available. (If dried milk is used, the instructions on the tin as to how the milk powder must be mixed with water must be followed closely). If milk is not given and the baby is fed on thin mealie meal porridge only, there is a grave danger of KWASHIORKOR developing.

Similarly when infants over 9 months are weaned, it is most important that they are not fed on mealie meal only. They should have milk (fresh or sour) daily, and if milk is not available, they must have other types of food, in addition to some mealie meal, such as meat, cooked beans and ground-nuts, eggs and vegetables. It is even better to give small amounts of other foods and a little mealie meal or kaffir corn porridge to babies over 6 months old, whilst still being breast fed, and to gradually increase the amounts of these foods before weaning the baby. The baby will than be accumstomed to the foods before he is weaned.

One may say that there are 3 classes of foods and that for a child to grow and develop properly it is necessary for the child to have some of each class of food each day. The classes of food are -

Class 1 - Mealie meal, kaffir corn, wheat;
Class 2 - Milk, meat, eggs, beans, ground nuts, peas;
Class 3 - Other vegetables and fruit.

It is the duty of every patent to ensure that their children's diet contains a fair amount of a food from each class each day. A diet of mealie meal only is extremely dangerous to health, and is likely to cause KWASHIORKOR.

(Issued by the Medical Department, Mbabane).

RETURN OF OUT-PATIENTS AND IN-PATIENTS,
GOVERNMENT HOSPITALS, 1957.

Detailed List No.	Group Causes	Out-patients		In-patients		Deaths	
		E	A	E	A	E	A
001-008	Tuberculosis of respiratory system	-	189	-	231	-	14
010	Tuberculosis of meninges and central nervous system	-	1	-	5	-	1
011	Tuberculosis of intestines, peritoneum and mesenteric glands	-	3	-	11	-	4
012,013	Tuberculosis of bones and joints	-	31	-	52	-	3
014-019	Tuberculosis, all other forms	4	69	-	20	-	-
020	Congential syphilis	-	86	-	19	-	-
021	Early syphilis	2	477	-	24	-	-
022,023 026-029	All other syphilis	-	104	-	37	-	-
030-035	Gonococcal infection	12	938	-	50	-	1
040	Typhoid Fever	1	9	-	43	-	4
045	Bacillary Dysentery	0	283	-	35	-	-
046	Amobbiasis	8	52	6	84	-	5
047,048	Other unspecified forms of dysentery	1	-	-	-	-	-
051	Streptococcal sore throat	70	-	6	44	-	-
052	Erysipelas	-	2	-	-	-	-
053	Septicaemia and pyaemia	2	-	-	6	-	-
055	Diphtheria	-	1	-	-	-	-
056	Whooping Cough	33	379	-	99	-	6
060	Leprosy	-	3	-	1	-	-
061	Tetanus	-	-	-	1	-	-
080	Acute poliomyelitis	2	2	1	-	-	-
081,083	Late effects of acute poliomyelitis and acute infectious encephalitis	2	2	-	4	-	-
085	Measles	31	61	-	27	-	-
092	Infectious hepatitis	-	11	1	4	-	2
101	Flea borne endemic typhus (murine)	-	-	-	-	-	-
104	Tick borne epidemic typhus	-	-	-	-	-	-
102,103, 106-108	Other and unspecified typhus (Tick-bite fever)	15	4	4	1	-	-
113,114, 116,117	Other & unspecified forms of malaria	2	1	-	1	-	-
123.1	Schistosomiasis vesical (S. haematobium)	-	179	-	43	-	-
123.2	Schistosomiasis pulmonary (S. japonicum)	-	-	-	1	-	-
126	Tapeworm (infestation) and other cestoda infestations	21	464	2	35	-	-
130.0	Ascariasis	7	302	-	26	-	-
130.3	Guinea worm (dracunculosis)	4	10	1	-	-	-
124,128 130.1, 130.2	Other diseases due to helminths	22	0	-	4	-	-
037	Lymphogranuloma venereum	-	7	-	-	-	-

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Detailed List No.	Group Causes	Out-patients		In-patients		Deaths	
		E	A	E	A	E	A
049	Food Poisoning infection and intoxication	5	1	-	1	-	-
087	Chickenpox	17	79	-	12	-	-
131	Dermatophytosis	-	328	-	-	-	-
135	Scabies	-	114	-	10	-	-
036-.054 059,063 064,070, 074,086 088,096.6 096.8 0.96.9,122 132-134 136-138	All other diseases classified as infective and parasitic	21	159	-	15	-	-
140-148	Malignant neoplasm of buccal cavity and pharynx	1	-	-	-	-	-
151	Malignant neoplasm of stomach	-	-	-	5	-	-
152,153	Malignant neoplasm of intestine, except rectum	1	-	-	7	-	2
171	Malignant neoplasm of cervic uteri	-	-	-	3	-	-
172-174	Malignant neoplasm of other and unspecified parts of uterus	-	2	-	6	-	-
190,191	Malignant neoplasm of skin	2	-	-	1	-	-
196,197	Malignant neoplasm of bone and connective tissue	-	-	-	3	-	-
155-160 164,165 175,176 178-181 192-195 198,199	Malignant neoplasm of all other and unspecified sites	1	7	-	5	-	-
210-239	Benign neoplasms and neoplasms of unspecified nature	38	74	4	81	-	-
250,251	Nontoxic goitre	3	149	-	19	-	-
252	Thyrotoxicosis with or without goitre	4	13	1	8	-	-
260	Diabetes mellitus	4	-	-	-	-	-
280	Beriberi	-	1	-	-	-	-
281	Pellagra	-	270	-	68	-	-
282	Scurvy	-	-	-	1	-	-
283-286	Other deficiency states	15	432	-	223	-	28
291	Iron deficiency anaemia (Hypochromic)	8	55	-	-	-	-
292,293	Other specified and unspecified anaemias	4	90	-	23	-	-
241	Asthma	47	84	6	31	-	-
240. 242-245 253,254 270-277, 287-289, 294-299	All other allergic disorders, endocrine, metabolic and blood diseases	38	162	3	7	-	

3/.......

Detailed List No	Group Causes	Out-patients		In-patients		Deaths	
		E	A	E	A	E	A
300-309	Psychoses	2	-	-	-	-	-
310-324 326	Psyschoneuroses and disorders of personality	50	137	8	11	-	-
325	Mental deficiency	-	15	-	5	-	1
330-334	Vascular lesions affecting central nervous system	3	10	2	3	1	-
340	Non-meningococcal meningitis	-	-	-	7	-	7
353	Epilepsy	2	39	1	9	-	-
370-379	Inflammatory diseases of eye	55	814	2	129	-	-
385	Cataract	1	26	-	10	-	-
387	Glaucoma	1	-	-	1	-	-
390	Otitis externa	74	240	-	18	-	-
391-393	Otitis media and mastoiditis	57	424	5	75	-	-
380-384 386,388 389	All other diseases and conditions of eye	5	102	-	30	-	-
341,344	All other diseases of the nervous system and sense organs	58	423	3	45	-	-
400-402	Rheumatic fever	1	13	-	9	-	-
410-416	Chronic rheumatic heart disease	2	100	-	5	-	2
420-422	Arteriosclerotic and degenerative heart disease	25	4	10	63	-	11
430-434	Other diseases of heart	18	167	3	45	-	-
440-443	Hypertension with heart disease	5	22	1	2	-	2
444-447	Hypertension without mention of heart	15	6	1	1	-	-
450-456	Diseases of arteries	-	-	-	3	-	-
460-468	Other diseases of circulatory system	56	93	3	56	1	5
470-475	Acute upper respiratory infections	275	1608	8	64	-	-
480-483	Influenza	304	2803	15	268	-	-
490	Lobar pneumonia	38	57	4	119	-	5
491	Bronchopneumonia	6	338	-	259	-	25
492,493	Primary atypical, other and unspecified pneumonia	10	18	3	51	-	5
500	Acute Bronchitis	111	3670	3	198	-	-
501,502	Bronchitis, chronic & unqualified	27	295	1	70	-	-
510	Hypertrophy of tonsils & adenoids	25	123	-	2	-	-
518,521	Empyema andabscess of lung	-	2	-	4	-	-
519	Pleurisy	4	33	-	18	-	-
523	Pneumoconiosis	-	22	1	22	-	1
511-517 520-522 524-527	All other respiratory diseases	30	66	-	11	-	-
530	Dental caries	88	1751	-	20	-	-
531-535	All other diseases of teeth and supporting structures	36	375	1	47	-	-

4/....

Detailed List No.	Group Causes	Out-patients		In-patients		Deaths	
		E	A	E	A	E	A
540	Ulcer of stomach	17	-	-	3	-	-
541	Ulcer of duodenum	14	-	-	1	-	-
543	Gastritis and duodenitis	60	696	1	64	-	-
550-553	Appendicitis	49	32	29	18	-	-
560,561 570	Intestinal obstruction and hernia	11	23	13	18	-	-
571.0	Gastro-enteritis and colitis between 4 weeks and 2 years	51	1338	2	147	-	15
571.1	Gastro-enteritis and colitis ages 2 years and over	104	1069	6	91	-	2
572	Chronic enteritis and ulcerative colitis	2	-	-	2	-	-
581	Cirrhosis of liver	5	7	1	8	-	-
584,585	Cholelithiasis and cholecystitis	10	8	6	6	-	-
536-539, 542,544 545, 573-580, 582,583 586,587,	Other diseases of digestive system	97	958	9	59	-	3
590	Acute nephritis	2	7	-	2	-	-
591-594	Chronic, other and unspecified nephritis	-	2	-	3	-	-
600	Infections of kidney	45	23	11	25	1	4
602,604	Calculi of urinary system	2	-	-	-	-	-
610	Hyperplasia of prostate	1	2	-	2	-	1
620,621	Diseases of breast	19	66	-	31	-	-
613	Hydrocele	3	31	1	27	-	-
634	Disorders of menstruation	56	539	3	60	-	-
601,603 605-609, 611,612, 614-617 622-633 635-637	All other diseases of the genito-urinary system	90	1548	27	257	2	-
640,641 681,682 684	Sepsis of pregnancy, childbirth and puerperium	1	-	-	3	-	-
642,652, 685,686	Toxaemias of pregnancy and the puerperium	-	2	-	-	-	-
643,644 670,672	Haemorrhage of pregnancy and childbirth	-	6	1	11	-	-
650	Abortion without mention of sepsis or toxaemia	11	48	8	50	0	-
651	Abortion with sepsis	1	5	1	3	-	-
645,649 673-680, 683, 687-689,	Other complications of pregnancy childbirth and the puerperium	5	78	7	139	-	8
660	Delivery without complications	57	1082	34	772	-	-

5/....

Detailed List No.	Group Causes	Out-patients		In-patients		Deaths	
		E	A	E	A	E	A
690-698	Infections of skin and sub-cutaneous tissue	322	807	7	196	-	-
720,725	Arthritis and spondylitis	19	246	4	64	-	-
726,727	Muscular rheumatism and rheumatism unspecified	72	734	3	72	-	-
730	Osteomyelitis and periostitis	-	19	-	39	-	-
737, 745-749	Ankylosis and acquired musculo-sketeletal deformities	8	28	-	6	-	-
715	Chronic ulcer of skin (including tropical ulcer)	3	54	-	5	-	1
700-714 716	All other diseases of the skin	65	342	10	56	-	-
731-736 738-744	All other diseases of musculo-skeletal system	114	20	9	41	-	-
754	Congenital malformations of circulatory system	-	1	-	-	-	-
750,752 753	All other congenital malformations	2	12	4	14	-	-
764	Diarrhoea of newborn (under 4 weeks	1	5	-	1	-	-
765	Ophthalmia neonatorum	-	16	-	4	-	-
763,766- 768	Other infections of new born	-	12	-	5	-	-
769 771,772	All other defined diseases of early infancy	9	11	-	7	-	2
773-776	Ill-defined diseases peculiar to early infancy & immaturity unqualified	2	9	-	22	-	7
794	Senility without mention of psychosis	2	3	1	4	-	-
738.8	Pyrexia of unknown origin	18	72	3	24	-	2
793 642,652	Observation without need for further medical care	554	1293	1	41	-	-
780-787 788.1-788.1 788.9 789-792 795.	All other ill-defined causes of morbidity	36	22	1	11	-	-

"E" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS, AND VIOLENCE (EXTERNAL CAUSE.

E810- E835	Motor vehicle accidents	14	24	4	41	-	3
E800- E802 E840- E866	other transport accidents	5	61	1	36	-	-
E870- E895	Accidental poisoning	8	41	2	28	-	1
E900- E904	Accidental falls	125	560	15	283	-	2

6/.....

Detailed List No.	Group Causes	Out-patients		In-patients		Deaths	
		E	A	E	A	E	A
E612	Accident caused by machinery	8	25	-	22	-	1
E916	Accident caused by fire and explosion of combustible material	7	183	-	70	-	7
E917-E918	Accident caused by hot substance, corrosive liquid, steam and radiation	2	85	-	34	-	-
E919	Accident caused by firearm	2	6	1	4	-	-
E910, E915, E913-E915 E920-E928, E930-E965	All other accidental causes	110	1067	11	301	-	2
E970-E979	Suicide and self-inflicted injury	-	1	-	2	-	-
E980-E985	Homicide and injury purposely inflicted on other persons (not in war)	3	321	2	280	-	4

"N' CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS, AND VIOLENCE (NATURE OF INJURY)

N800-N804	Fracture of Skull	1	7	2	30	-	4
N805-N809	Fracture of spine and trunk	4	4	1	5	-	1
N810-N829	Fracture of ribs	50	173	10	225	-	1
N830-N839	Dislocation without fracture	6	31	1	20	-	-
N840-N848	Sprains and strains of joints and adjacent muscles	49	353	3	47	-	-
N850-N856	Head injury (excluding fracture)	7	132	5	51	-	-
N860-N869	Internal injury of chest, abdomen and pelvis	3	3	2	18	-	3
N870-N908	Laceration and open wounds	83	840	4	352	-	-
N910-N929	Superficial injury, contusion and crushing with intact skin surface	37	293	-	60	-	-
N930-N936	Effects of foreign body entering through orifice	10	99	1	45	-	-
N940-N949	Burns	11	268	-	78	-	7
N960-N979	Effects of poisons	14	43	5	76	-	1
N950-N959 N980-N999	All other and unspecified effects of external causes	13	24	1	29	-	-

APPENDIX V

METEOROLOGICAL OBSERVATIONS.

SWAZILAND 1957.

STATION : MBABANE (HIGHVELD).

MONTH	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total Ins.	No. of days
January	24.3	14.3	30.1	11.2	4.86	10
February	26.2	14.1	31.4	11.2	7.68	10
March	23.4	13.3	28.0	10.0	5.55	11
April	22.1	12.2	28.1	9.3	6.22	9
May	Records incomplete				0.22	1
June	17.8	5.5	23.1	-6.1	1.26	3
July	19.3	7.2	27.0	6.2	4.74	7
August	19.7	7.5	27.0	6.1	2.29	5
September	22.7	11.6	31.3	7.2	4.19	12
October	Records incomplete				1.68	12
November	Records incomplete				12.6	11
December	17.6	13.0	31.0	6.4	2.99	5
Total					54.34	96.

/Average 56.46.

STATION : BREMERSDORP (MIDDLEVELD)

MONTH	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total Ins.	No. of days.
January	31.2	19.2	37.5	15.3	2.12	11
February	31.7	19.3	33.8	16.4	4.02	10
March	28.9	17.8	34.2	13.4	3.95	14
April	26.7	15.4	34.2	12.1	6.33	14
May	25.3	10.3	30.0	6.9	0.05	2
June	22.4	8.4	28.3	2.4	1.37	4
July	23.1	9.9	30.2	6.0	3.90	7
August	23.6	9.9	31.7	4.2	1.41	6
September	25.0	14.3	35.4	10.0	4.58	14
October	26.0	15.5	33.7	10.7	3.94	15
November	28.1	17.7	35.7	13.7	2.29	16
December	30.1	17.8	35.0	13.3	1.91	13
Total					35.87	126

/Average 33.78

METEOROLOGICAL OBSERVATIONS

SWAZILAND 1957

STATION : HLATIKULU (HIGHVELD)

	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total Ins.	No. of days
January	23.5	15.7	29.5	12.2	4.93	22
February	24.7	16.3	35.5	11.8	5.37	10
March	21.8	14.5	27.2	10.6	5.74	14
April	21.1	12.4	27.2	7.4	5.97	16
May	20.7	11.1	26.9	6.4	0.65	7
June	20.0	9.2	26.4	2.5	1.20	6
July	18.0	9.6	24.9	3.1	4.04	8
August	18.3	8.7	25.4	2.4	1.70	9
September	19.6	11.6	28.1	6.4	5.21	15
October	20.5	12.1	26.9	7.1	5.88	17
November	22.9	13.4	31.1	9.4	5.55	16.
December	Records incomplete				2.43	14
Total					48.67	154

/Average 45.85

STATION : STEGI (LOWVELD)

	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total Ins.	No. of days.
January	28.2	17.5	33.4	16.0	2.92	7
February	29.1	18.6	36.0	15.0	4.51	8
March	26.2	17.0	31.0	14.4	3.03	9
April	25.0	15.3	29.0	13.0	5.02	8
May	23.9	12.9	30.0	9.4	0.12	3
June	20.7	10.5	27.2	6.2	0.93	4
July	21.4	11.6	28.4	7.2	3.52	5
August	22.0	11.1	29.5	5.6	1.38	6
September	23.4	13.9	32.6	10.5	5.23	12
October	24.2	14.1	30.6	9.5	3.69	8
November	26.6	16.4	34.6	13.5	0.63	4
December	27.5	16.7	33.0	12.4	1.50	4.
Total					34.48	78

/Average 29.61.